

# GNT400

Front End Series 400W AC/DC

Universal Input Medical & ITE Power Supply



2 Year Warranty

- Medical (EN60601-1) and ITE (EN60950) Certifications
- Compact 4" x 7" x 1.5" U Channel (1U compatible)
- 9.5 W/in<sup>3</sup>
- 100-240 VAC Input with Active PFC
- 12 to 48 V DC Output at 400W (300W convection rating)
- 5 Vdc, 100 mA Standby Output
- 12 Vdc Fan Output
- Approved to UL, CSA, and EN/IEC Standards
- Less than 100µA leakage
- Compliance to EN55011/22 Conducted Noise, Class B
- RoHS Compliant – Category 6



**CONDOR**™

International Safety Standard Approvals



**RoHS**



## Specifications

All Specifications are typical at nominal input, full load at 25°C unless otherwise stated.

|                              |                                                                                                   |                                   |                                                                                                               |
|------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>AC Input</b>              | 100-240VAC, 50/60 Hz, 1Ø. 90-270VAC, 45-65 Hz max                                                 | <b>Turn On Time</b>               | 500 ms max                                                                                                    |
| <b>Input Current</b>         | 120VAC: 4.2A. 230VAC: 2.1A                                                                        | <b>Hold-up Time</b>               | 20 ms at 400W                                                                                                 |
| <b>Inrush Current</b>        | Active Circuit, 37A max. peak                                                                     | <b>Over/Undershoot</b>            | 3.5% max                                                                                                      |
| <b>Input Fuses</b>           | F1 and F2, 6.3A/250V for line and neutral                                                         | <b>Overload Protection</b>        | Cycling type, 470W typical                                                                                    |
| <b>Power Factor</b>          | 0.99 typical, 0.96 minimum                                                                        | <b>Overvoltage Protection</b>     | See chart                                                                                                     |
| <b>Earth Leakage Current</b> | 100µA at 120VAC, 60 Hz Normal<br>400µA at 264VAC, 50 Hz, SFC                                      | <b>Ripple and Noise</b>           | 1% pk-pk max., 20MHz BW<br>0.1µF and 10 µF caps on probe                                                      |
| <b>Output Power</b>          | 400W continuous with 200lfm airflow<br>See chart for convection ratings                           | <b>ITE Safety Standards</b>       | CSA/EN/IEC/UL 60950-1                                                                                         |
| <b>Peak Output Power</b>     | 450W for 1 minute, 10% duty cycle                                                                 | <b>Medical Safety Standards</b>   | EN/IEC/UL 60601-1, CSA22.2 No. 601-1                                                                          |
| <b>Output Voltage</b>        | See chart                                                                                         | <b>Thermal Considerations</b>     | Keeping the following components below these temp. indicates sufficient cooling: T5: 90°C max., T1: 100°C max |
| <b>Voltage Adjustability</b> | ±5% minimum                                                                                       | <b>Switching Frequency</b>        | Output: 170kHz ±8kHz, PFC: 140kHz ±8kHz                                                                       |
| <b>Minimum Load</b>          | Not required                                                                                      | <b>MTBF</b>                       | 300K hours per Telcordia                                                                                      |
| <b>Total Regulation</b>      | See chart                                                                                         | <b>Overtemperature Protection</b> | Automatic                                                                                                     |
| <b>Transient Response</b>    | 500µs to 1%, 50% load step, $\Delta I/\Delta t < 0.2A/\mu s$<br>Maximum voltage deviation is 3.5% | <b>Efficiency</b>                 | 91% typical at 230VAC<br>88% typical at 120VAC                                                                |
| <b>Remote Sense</b>          | Compensates for up to 500mV voltage drop                                                          | <b>Temperature Coefficient</b>    | 0.03% per °C typical on all units                                                                             |

## Model Number Key

GNT 4 XX X X X G

RoHS Compliant

Cover Options: Blank = Standard Mini Cover, "E" = Cover with fan on the end, "T" = Cover with fan on top

Output Connections: "B" = Busbars, "T" = Phoenix P/N 1731721

Input Connections: "A" = EBY P/N 5002-03-N-12, "B" = Phoenix P/N 1732034, "C" = AMP P/N 540445-5 (pins 2 & 4)

Output Voltage: (See models chart below)

Output Power (Watts): "4" = 400W

Product Family

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| Model Number | Volts (V) | Output Current |            | Ripple & Noise | Total Regulation | OVP Threshold |
|--------------|-----------|----------------|------------|----------------|------------------|---------------|
|              |           | Convection     | Fan Cooled |                |                  |               |
| GNT412ABG    | 12V       | 25.0A          | 33.3A      | 120mV          | ±2%              | 14.0 ± 1V     |
| GNT415ABG    | 15V       | 20.0A          | 26.7A      | 150mV          | ±2%              | 17.6 ± 1V     |
| GNT418ABG    | 18V       | 16.7A          | 22.2A      | 180mV          | ±2%              | 20.8 ± 1V     |
| GNT424ABG    | 24V       | 12.5A          | 16.7A      | 240mV          | ±2%              | 26.5 ± 1V     |
| GNT428ABG    | 28V       | 10.7A          | 14.3A      | 280mV          | ±2%              | 32.0 ± 1V     |
| GNT436ABG    | 36V       | 8.3A           | 11.1A      | 360mV          | ±2%              | 39.0 ± 1V     |
| GNT448ABG    | 48V       | 6.3A           | 8.4A       | 480mV          | ±2%              | 55.0 ± 2V     |

## Notes:

1. When the input voltage is <90Vac, derate output power to 300W fan cooled or 250W convection.
2. Using the T or E cover options allows for 400W continuous operation up to 40°C ambient.
3. For 400W at 50°C, use 100 lfm fan cooling.

## EMI/EMC Compliance

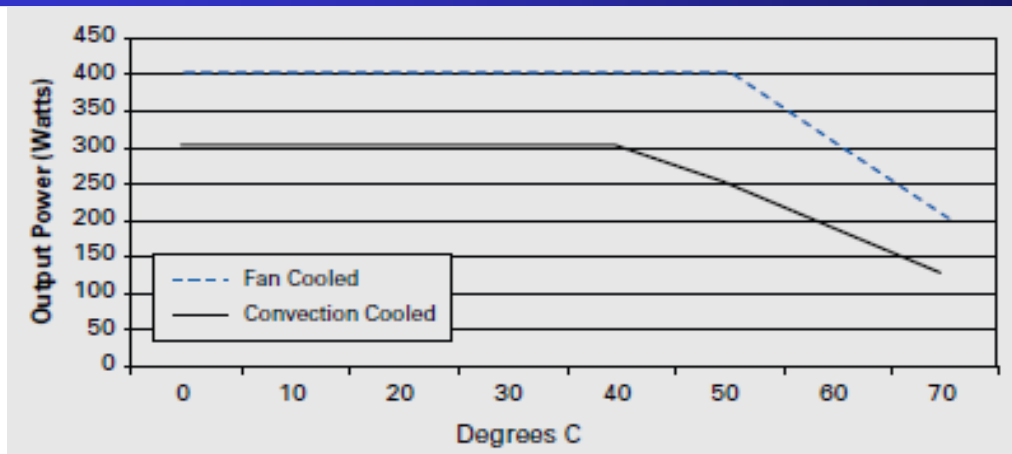
|                                         |                                                       |
|-----------------------------------------|-------------------------------------------------------|
| Conducted Emissions                     | EN55011/22 Class B                                    |
| Radiated Emissions                      | EN55011/22 Class A                                    |
| Voltage Fluctuations                    | EN61000-3-3, complies                                 |
| Static Discharge Immunity               | EN61000-4-2, 6kV Contact Discharge, 8kV air discharge |
| Radiated RF Immunity                    | EN61000-4-3, 3V/m.                                    |
| EFT/Burst Immunity                      | EN61000-4-4, 2kV/5kHz..                               |
| Line Surge Immunity                     | EN61000-4-5, 1kV differential, 2kV common-mode        |
| Conducted RF Immunity                   | EN61000-4-6, 3Vrms                                    |
| Power Frequency Magnetic Field Immunity | EN61000-4-8, 3A/m                                     |
| Voltage Dip Immunity                    | EN61000-4-11 criteria A @ 250 Watts or less.          |
| Line Frequency Harmonics                | EN61000-3-2, Class A                                  |

## Environmental Specifications

## Auxiliary Outputs and Signals

|                        |                                 |                   |                                          |
|------------------------|---------------------------------|-------------------|------------------------------------------|
| Operating Temperature  | 0 to 70°C (See chart)           | PS On             | Low to Inhibit                           |
| Storage temperature    | -40 to 85°C                     | PS Off            | TTL HI to Inhibit                        |
| Operating Altitude     | -500 to 10,000 ft.              | Pwr OK            | HI when AC is OK, 100-200 msec delay     |
| Non-operating Altitude | -500 to 40,000 ft.              | Pwr OK            | PF low – 4 msec warning                  |
| Relative Humidity      | 5% to 95%, non-condensing       | DC OK             | HI when output is >95% of nominal        |
| Vibration              | 5 Hz – 500 Hz, 2.5g rms         | 5V Standby Output | Always ON, up to 100mA                   |
| Shock                  | Per MIL-STD-810E, 516.4 part IV | Fan Output        | 12Vdc @ 250mA (turns off during inhibit) |

## GNT400 Output Power vs. Line Voltage & Temperature



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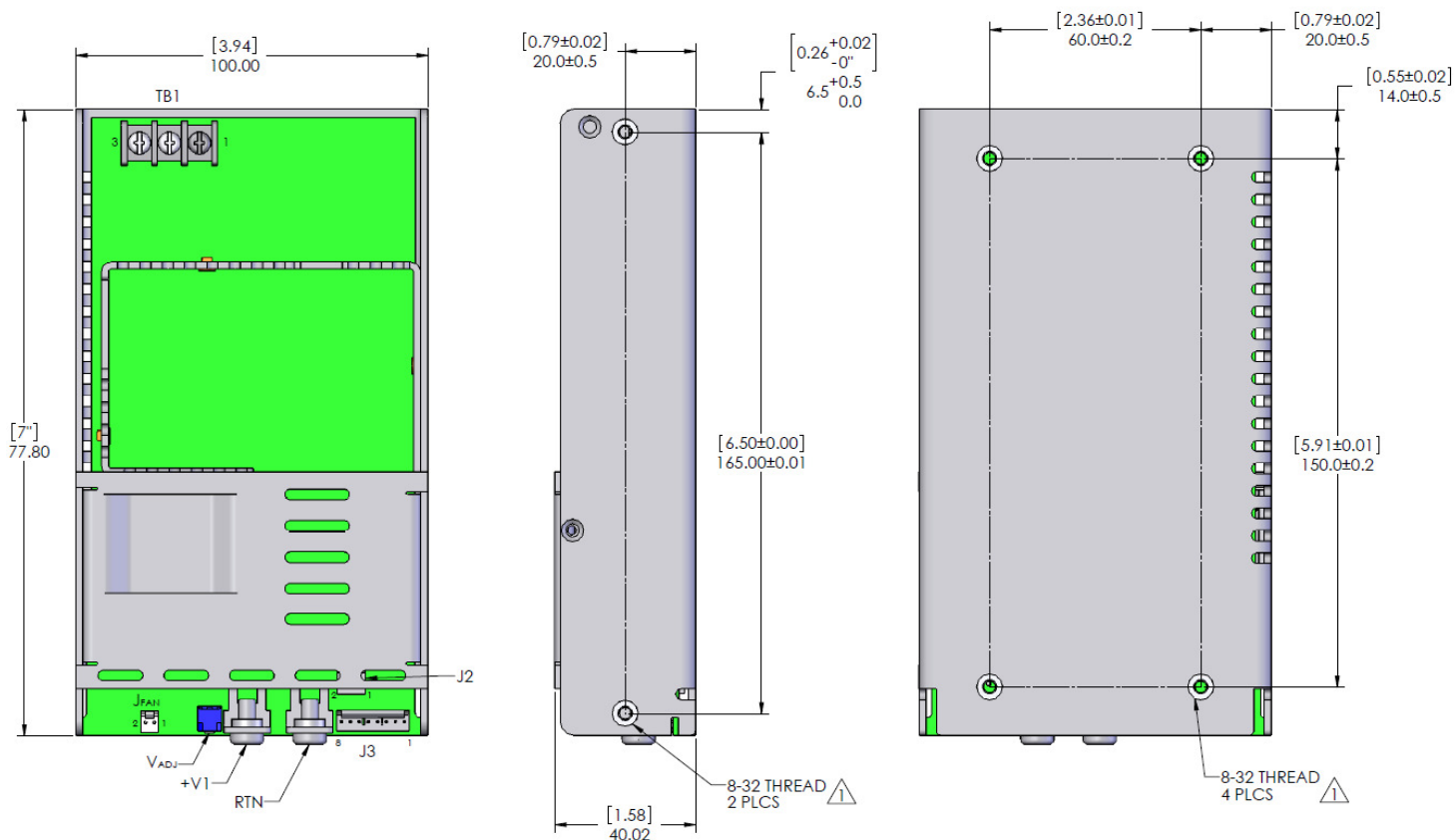


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## Mounting Options

## GNT400 SERIES

WEIGHT: 0.75 Kg [1.6 LBS]



INPUT: TB1 - EBY P/N 5002-03-N-12

- 1 AC LINE
- 2 AC NEUTRAL LINE
- 3 AC SAFETY GND

OUTPUT: BUSSBAR #1 +V1  
10-32UNC X .375 SCREW

BUSSBAR #2 RETURN  
10-32UNC X .375 SCREW

J FAN - AMP P/N 640456-2

- 1 +12V @ 0.25A
- 2 FAN RTN.

J3 - AMP P/N 640456-8

- 1 PS OFF
- 2 INHIBIT
- 3 PWR OK
- 4 DC OK
- 5 SIGNAL RTN
- 6 +5V @ 0.1A
- 7 -SENSE
- 8 +SENSE

TOLERANCE: MOUNTING HOLES ONLY  
CENTER-TO-CENTER

XX.XX =  $\pm 0.2$  [.008]  
XX.X =  $\pm 0.5$  [.020]  
XX. =  $\pm 1.0$  [.039]

### Mating Connectors (Tyco/Amp)

| Location | Option | Type                        |
|----------|--------|-----------------------------|
| Input    | A      | #6-32 Lug .325 CTR          |
|          | B      | Wire                        |
|          | C      | Amp 640250-5 and 3-770476-1 |
| Output   | B      | #10-32 Lug                  |
|          | T      | Wire                        |
| J3       |        | Amp 64xxxx-8 with sockets   |
| J Fan    |        | Amp 64xxxx-2 with sockets   |

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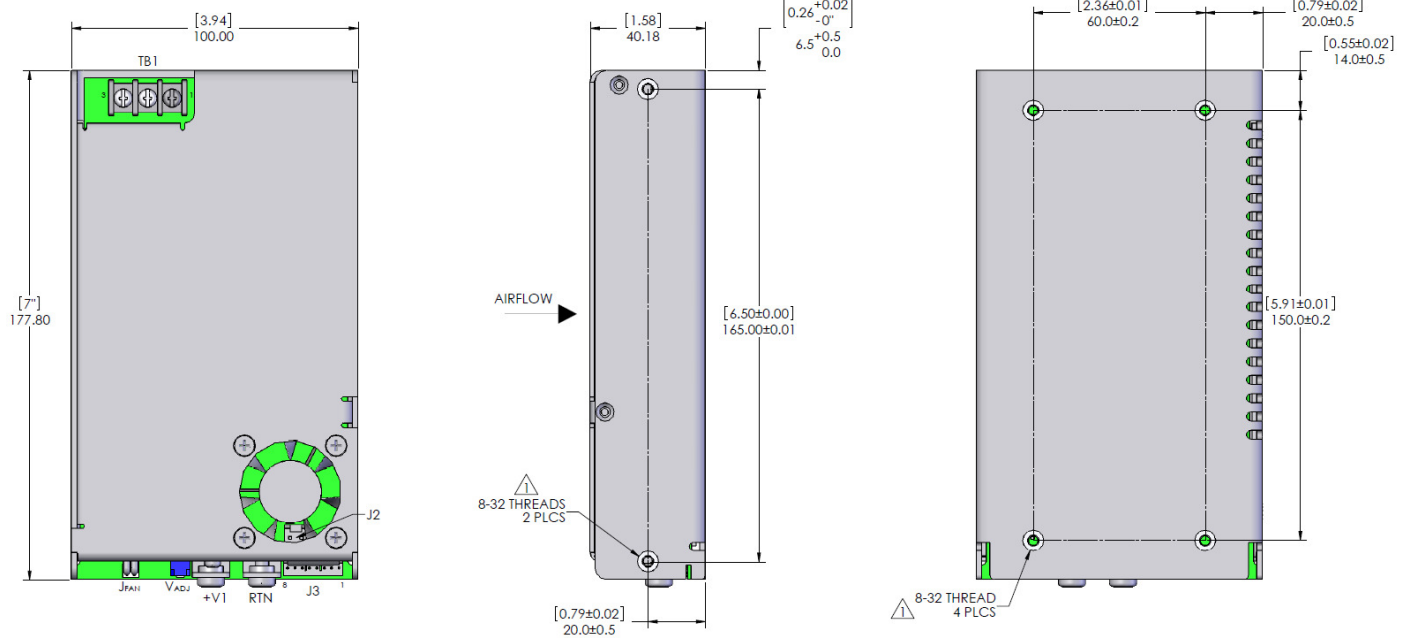


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## Mounting Options (continued)

### "T" OPTION

WEIGHT: 0.75 Kg [1.6 LBS]



### "E" OPTION

WEIGHT: 0.84 Kg [1.86 LBS]

